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Preface

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Abstract

This volume contains the *Proceedings* of the First Workshop on the Theory and Practice of Timed Systems (TPTS'2002). The Workshop was held in Grenoble, France on April 6 and 7, 2002, as a satellite event to ETAPS'2002.

The study of time-dependent behavior is treated currently under different titles by different communities. Classical problems of manufacturing scheduling, for example, are considered as part of operation research and industrial engineering. Similar but different scheduling problems are encountered in the research on real-time operating systems. People who are interested in semantics, verification or performance analysis are working on models such as timed automata, timed Petri nets or max-plus algebra. Electrical engineers have to consider propagation delays in their circuits and designer of embedded controllers have to take into account the time it takes for the controller to compute its reaction after sampling the environment. The unifying theme underlying all these apparently different domains is that they treat systems whose behavior depends upon combinations of logical and temporal constraints, i.e. constraints on the distance between the occurrences of two events.

The workshop goal is to promote the study of fundamental and practical aspects of timed systems. The three major axes of interest are listed below: Foundations and semantics: contributions to a better theoretical foundations for timed systems and timed formal languages as well as a comparison between different models used by different communities (timed automata, timed Petri nets, max-plus algebra, etc.).

Algorithms and tools: new algorithms and data-structures for analyzing timed systems and resolving temporal constraints. are needed in order to push timing technology into the real world.

Applications: adaptation and specialization of timing technology to the modeling and analysis of certain types of application domains in which timing plays an important role (real-time software, hardware circuits and problems of scheduling in manufacturing or telecommunication).

The papers in this volume were reviewed by the program committee consisting of

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